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### ABSTRACT

The present invention demonstrates that continuous hemodynamic monitoring can be used to identify the optimal AV-delay in a pacemaker-treated patient with end stage heart failure. The AV-delay determines the timing of late diastolic filling in relation to the onset of ventricular contraction and the duration of diastolic filling. An optimal tuning of the AV-delay improves left ventricular filling pressures in patients with a DDD-programmed pacemaker and is particularly important in the presence of a compromised left ventricular function. It has been discovered that using the lowest ePAD pressure, an indirect parameter of the left ventricular end-diastolic pressure, as an indicator for the optimal AV interval. Importantly, measurements of the ePAD revealed the same optimal AV-delay as echocardiographic assessment of left ventricular diastolic filling by standard echocardiographic methods. Importantly, the HR determined as optimal during the acute hemodynamic test did *not* turn out to be optimal during daily living activities.